What we claim is:

1. Method for automatically detecting a pre-defined image pattern, in particular a human eye, in an original picture, comprising the following steps:
   a) pixel data from said original picture are looked through by means of a processing step, including at least one transform, to find the pre-defined image pattern, in particular a human eye,

   characterized in that

   b) said processing step is split up into at least two stages, including:

      b1) a first stage with a coarse processing step to detect locations in the original picture imposing an increased likelihood that the pre-defined image pattern, in particular a human eye, can be found there;

      b2) a second stage with a refined processing to be applied to the locations to identify the pre-defined image pattern, in particular a human eye.

2. Method according to claim 1, wherein at least one of the stages uses a Hough transform, and in particular a gradient decomposed Hough transform.

3. Method according to claim 1, wherein the first stage additionally includes pre-processing step to modify the image in accordance with generally existing features of the image pattern searched for, in particular a human eye.

4. Method according to claim 1, wherein the first stage additionally includes another pre-processing step according to which areas of an original picture are omitted for which the likelihood is low that the pre-defined image pattern, in particular a human eye, can be found therein.

5. Method according to claim 1, wherein the first stage includes that the image data, and in particular the pre-processed image data of the original picture, is directed to a gradient calculation processing to achieve gradient information to be processed further.

6. Method according to claim 1, wherein the first stage includes that straight lines are removed from the image data by means of the following steps:
   a) an edge detector processing is applied to the image data;
   b) a threshold processing is applied to the image edge data to sort out edge data beyond/above a particular threshold;
   c) remaining image edge data are processed to detect there aspect ratio;
   d) if an aspect ratio of a corresponding image edge data is above/beyond a particular threshold, this image data are deemed to represent a straight line, and image data beyond/above the particular threshold are deleted.

7. Method according to claim 6, wherein the image edge data identified to represent straight lines are directed to a deleting processing step.

8. Method according to claim 5, wherein the resulting image data is directed to a gradient decomposed Hough transform and is modified, in particular to fit curves and/or circles, modification being done in accordance with basic shape features of the searched image pattern, in particular a human eye.

9. Method according to claim 8, wherein a gradient intensity is calculated at a point (x,y) by the following equations:

$$x_0 = x \pm \frac{r}{\sqrt{1 + \frac{dx^2}{dy^2}}} \qquad (1.1)$$

$$y_0 = y \pm \frac{r}{\sqrt{1 + \frac{dy^2}{dx^2}}} \qquad (1.2)$$

10. Method according to claim 8, wherein the results of the processing of the resulting image data are added up in a two-dimensional accumulator space to provide at least one characteristic first stage maximum for the searched image pattern to detect a center or approximate center of the searched image pattern, in particular a human eye, in correspondence with the location of the searched image pattern in the corresponding original picture.

11. Method according to claim 10, wherein only first stage maxima above a certain threshold are considered as a center, or approximate center, of a searched image pattern, in particular a human eye, preferably by the following equation:

$$A' = \max(0, A - \max(A)/3) \qquad (1.3)$$

12. Method according to claim 10, wherein a surrounding of the detected center, or centers, together with the gradient image, is directed to the second stage with a re-find processing to protect the image data into one-dimensional accumulators to find out a second stage maximum.

13. Method according to claim 12, wherein only second stage maxima above a certain threshold are considered as the center, or approximate center, of a searched image pattern, in particular a human eye, preferably by the following equation:

$$A' = \max(0, A - \max(A)/3) \qquad (1.3)$$

14. Method according to claim 12, wherein a mathematical distribution, in particular a Gaussian distribution, is applied to the gradient image data in each of the surroundings to determine a mean and a standard deviation, wherein the mean deviations of each of the projections correspond to one-dimensional accumulators, i.e. either the x-axis or the y-axis, result in the location of the center of the searched image pattern, e.g. a human eye.

15. Method according to claim 14, wherein the minimum of the two standard deviations for the two corresponding one-dimensional accumulators provides an estimation of the size of the searched image pattern, e.g. a human eye.

16. Image processing device for processing image data, including:
    a) an image data input section,
    b) an image data processing section,
    c) an image data recording section for recording image data,
    wherein the image data processing section is embodied to implement a method according to claim 1.